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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,112	09/22/2003	Mitsuru Nagai	105033.01	5425
25944	7590	01/28/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			NGUYEN, TAI V	
			ART UNIT	PAPER NUMBER
			3729	

DATE MAILED: 01/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/665,112

Applicant(s)

NAGAI ET AL. 

Examiner

Tai Van Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 8-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5 and 7 is/are rejected.
- 7) ☒ Claim(s) 3,4 and 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/508,168.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/22/2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_



**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election with traverse in the reply filed on 11/29/2004 is acknowledged. The traversal is on the ground(s) that applicants believe that restriction for Species A and B examination of entire application could be made without serious burden. The examiner traverses because the search between each of the invention of Species A and B would be non coextensive, thus being a burden to the examiner.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 8-14 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 11/29/2004.

***Specification***

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

4. The following title is suggested: A MEHTOD OF PRODUCING A PIEZOELECTRIC RESONATOR.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Admitted Prior (AAPA) in view of Maddocks (US 4,045,594).

As applied to claim 1, The AAPA (Prior Fig. 12A-12B and 13A-13C) teaches a method of producing a piezoelectric resonator, comprising: forming a flat plate piezoelectric resonator piece (1002, Fig. 12A); forming exciting electrodes (1045) on each of the upper side (1025) and lower side (1026) of the piezoelectric resonator piece from the electrode patterns formed on the piezoelectric resonator piece; forming conduction electrodes (1245, 1046) from the electrode patterns (1040) on the edges of the upper side (1025), the edges of the lower side (1026), and the sides of the piezoelectric resonator piece so as to electrically connect (1031) the exciting electrodes; forming an insulating surface protecting films (1047) on the upper and lower sides of the piezoelectric resonator piece to cover at least the exciting electrodes (1040), each of the electrode patterns comprising an under metal layer formed on the surface of the piezoelectric resonator piece, and a noble metal such as gold layer (1042) formed on the surface of the under metal layer, each of the electrode patterns in the exciting electrodes comprising the under metal layer, each of the electrode patterns in the

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conduction electrodes comprising the under metal layer except portions ranging from the upper side of the piezoelectric resonator piece to the lower side through the sides, and each of the electrode patterns in the portions comprising the under metal layer and the noble metal layer (sequence Fig. 13A-13C); forming the first electrode patterns (1040) each comprising the under metal layer (1041) and the noble metal (1042) layer to cover the entire surface of the under metal layers in the electrode pattern forming regions of the surface of the piezoelectric resonator piece; forming regions excluding the portions and in the exciting electrode forming regions (1045); removing the first noble metal layers exposed from the apertures (see Fig. 13A); forming the first insulating films forming the surface protecting films (1047).

However, The AAPA does not teach that forming a first mask covering regions corresponding to portions of the conduction electrodes, having apertures and removing the first insulating films deposited on the surface of the mask.

Maddocks teach forming that forming a first mask (32, Fig. 3C) covered regions corresponding to portions of the conduction electrodes (38), having apertures (35) and removing the first insulating films deposited on the surface of the mask (sequence Fig. 3A-3D). It would have been an obvious to one of ordinary skill in the art at this time the invention was made to have modified The AAPA method utilizing forming a first mask covering regions corresponding to portions of the conduction electrodes, having apertures and remove the insulation, as taught by Maddocks, to positively provide an improved manufacturing process to form a patterned insulating film (see column 1, lines 53-56)..

As applied to claim 2, The AAPA Fig. 12A-12B teaches the portions of the conduction electrodes (1040) lying in regions corresponding to curved or bent portions of the sides of the piezoelectric resonator piece (see Fig. 12A-12B).

As applied to claim 5, The AAPA teaches the noble metal layer being formed of gold (1042, Fig. 13A).

As applied to claim 7, The AAPA teaches the under metal layer being formed of chromium (1041, Fig. 13A).

***Allowable Subject Matter***

7. Claims 3-4 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tai Van Nguyen whose telephone number is 571-272-4567. The examiner can normally be reached on M-F (7:30 A.M - 4:30 P.M).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TN.  
January 19, 2005



A. DEXTERTUGBANG  
PRIMARY EXAMINER